

# *The Phoenix Scout Mission*

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ATLO → 1 Day  
Ship → 400 Days  
Launch → 479 Days  
EDL → 775 Days

NASA's lessons learned  
workshop for PI-led  
planetary science  
Missions, April 11, 2006



*Phoenix*  
Lessons Learned in Step 2  
Phase A

- All the principal proposal managers and most of the engineers have other demanding jobs
  - Pressured to make decisions without fully considering the impacts, “we’ll resolve these issues in phase B”
- Less sense of ownership for an unselected mission by some participants
- Requirements are only defined at the highest levels
  - Costs must be tallied with little insight into the full complexity of the tasks
- Percentage of funds spent is miniscule
  - We are authorized less than 0.2% of the mission cost to do mission definition for selection (For Phoenix \$600K of \$386M)
- Phase A is a competition
  - Is this truly in the best interest of NASA?



## Expect Change From Other Missions



- Phoenix knew we needed to address MSP'01 return to flight criteria
  - Addressed it early (e.g. – Hot Fire Test-bed)
- Phoenix did not know the effects MER Entry Descent and Landing reconstruction
  - Unpredicted results and new findings added significant complexity to EDL development and test program.

- Many PI-led proposals must show substantial heritage to stay within the cost cap
  - The Project rarely understands what they have inherited--black boxes that have flown before
  - As requirements are flowed down in phase B, the black boxes, in many cases, cease to be a good match
- Schedule extensive heritage reviews early in Phase B
  - Learn your heritage assumption mistakes early, unlike a fine wine, they don't get better with age.